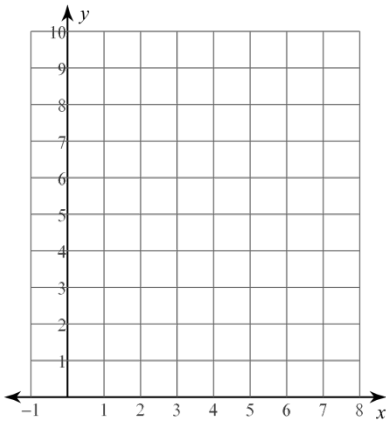


Part A: Graphing Quadratics and Finding Key Features [F-IF.4]

Graph the quadratic functions. **State** the *domain* and *range* in any form.

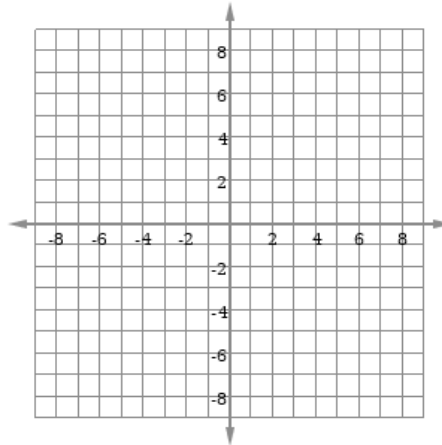
1. $f(x) = (x - 2)^2 + 3$



Domain: _____

Range: _____

2. $f(x) = 3x^2 - 2$

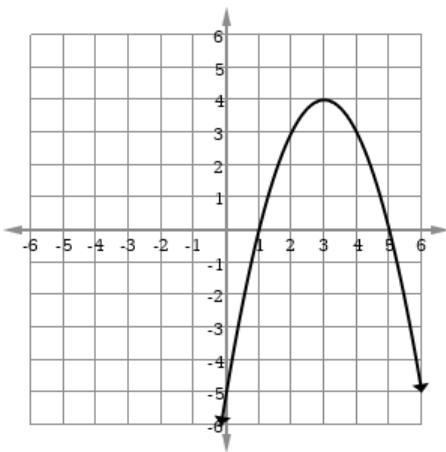


Domain: _____

Range: _____

Answer the questions completely using the graph below.

$h(x)$



3. **Find** each of the following for the function $h(x)$:

A) The Maximum or Minimum

B) The x-intercept(s)

C) The y-intercept

D) The domain

E) The range

F) Interval(s) on which the function is increasing

G) Interval(s) on which the function is decreasing

Part B: Transformations with Quadratics [F-BF.3]

Answer the questions completely.

5. **Write** the function that represents $f(x) = -x^2$ after a translation right 2 units.

6. **Compare** and **contrast** the functions: $f(x) = -2x^2$ and $g(x) = (x+1)^2 - 2$.

7. **State** the vertex and axis of symmetry for $f(x)$ and also **convert** $f(x)$ to standard form.
 $f(x) = -2(x+3)^2 + 1$

Part C: Applying Quadratics [F-IF.4]

Answer the questions completely.

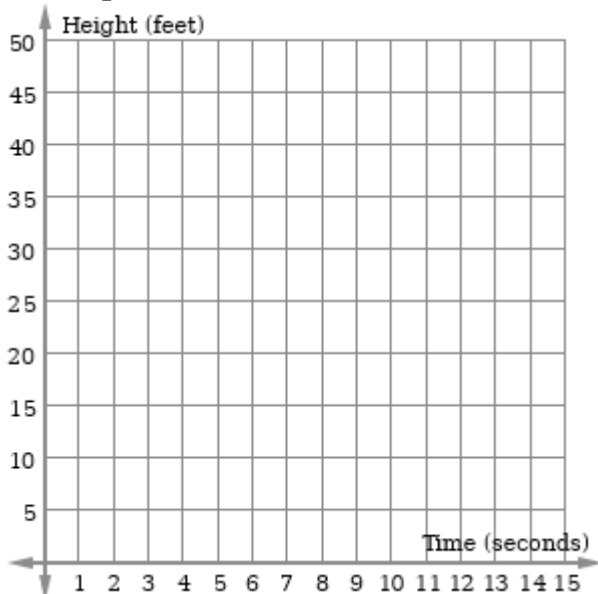
8. You throw a small ball straight up into the air. You plan to throw the ball at time 4 (measured in seconds). The ball's height (measured in feet) will follow the quadratic function $f(x) = -2(x-8)^2 + 32$.

B) **Find** and **interpret** the *vertex* in context.

Vertex = _____

Interpret:

A) **Graph** the situation below.



C) Suppose you throw the ball 4 seconds earlier than you intended. **Write** the transformed function $g(x)$ below and then **graph** $g(x)$ on the coordinate plane.

$g(x) =$ _____

Part D: Essential Question

Write a Big Idea response for the Essential Question. **Include** vocabulary terms you have learned. Your responses will be evaluated using the Big Ideas Scoring Guide.

9. **Explain** what the key features of a quadratic function represent in a real-world situation.